

REMARKS

Claims 1, 3 to 6, and 8 to 20 now appear in the application. By this amendment, claims 1, 3 to 6, 8, and 9 have been amended, and new claims 10 to 20 have been added.

The disclosed and claimed invention relates to a mobile terminal device and a method of updating a program stored in the device. As shown in Fig. 1, a mobile terminal 1, such as a cell phone, has operating system software that requires updating from time-to-time from a base station 2. This is done by RF transmission 3, but such transmission is subject to interruption. Reference is made to the drawing figures attached to the English language translation of the priority document submitted with the amendment filed 8/30/04, as these figures have legends. As described on page 4, third paragraph, of that amendment, normal operation software is stored in storage area 1A, while update data is downloaded to storage area 1C until the update data download is completed and installed. To account for possible interruptions in the download process, the update data is divided into a plurality of sequential data sets by the base station, which data sets are associated with corresponding pointers. As described at page 4, third paragraph, in the amendment filed 8/9/05, incomplete downloads may be remedied by repeating downloading of only those data sets not fully downloaded, rather than repeating the downloading of all the update data. Arithmetic unit 1D verifies the pointer of each complete update data set and determines the pointer for the next data set which should be received next. After all update data is downloaded, an operation test is automatically started.

Claims 1, 3 to 6, 8, and 9 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,687,901 B1 to Imamatsu in view of European Patent No. EP 0 802 694 A2 to Heidari in further view of U.S. Patent No. 6,425,125 B1 to Fries et al. in further view of U.S. Patent No. 6,658,247 B1 to Saito. This rejection is respectfully traversed for the reason that the combination of Imamatsu, Heidari, Fries et al., and Saito does not teach or suggest the claimed invention.

Imamatsu updates software in a terminal device. The update software 203

is not stored before installation but is instead downloaded directly through buffer memory 206 to the control software portion 204 of main memory 202. The Heidari mobile phone stores two sets of protocols in separate program memories 66 and 68 so that the computer 58 may switch between protocols as may be required in transitioning between cells using different protocols. Fries et al. describe a process that identifies sections of a program that are to be upgraded. Saito is concerned with downloading music data to a cell phone and provides for interruption and subsequent restarting of music transmissions when calls are taken.

There is no reason to combine Imamatsu, Heidari, Fries et al. and Saito, and even if these disparate references could somehow be combined, the combination would not result in the claimed invention. At best, the combination would be a cell phone in which software is updated (Imamatsu) and separate protocols are stored to provide compatibility between cells using different protocols (Heidari) wherein in the software is only updated in those sections that are to be upgraded (Fries et al.) and additionally allows for the downloading of music.

None of the references, taken singly or in combination, recognize the problem solved by the claimed invention, which is the updating of a control program in a mobile device wherein transmission of the update data is subject to interruption but avoids having to repeat the entire transmission process and verifies the update data. The invention first divides the update data into a plurality of sequential data sets which are identified by pointers. Once a data set has been downloaded to a separate memory within mobile device, the arithmetic unit verifies the downloaded data has been received and determines the next pointer in the sequence for downloading the next data set (Claim 1). This process is continued until all data sets of the sequence have been downloaded. If there is an interruption during the download process, once re-connection is made to the base station, the download process resumes with the next data set in the sequence which was not completely downloaded before the interruption (Claims 3 and 6). After all the update data is transmitted, an operation test is automatically started (Claims 4, 5 and 8). Once the test is completed, the updated program is re-written

into an existent program (Claim 9).

The claims have been amended to place them in better condition for allowance or, in the alternative, appeal. Specifically, claim 1 has been amended in the preamble to recite a “method of updating a program in a terminal device such that update data and an existent program are stored separately within said terminal device” (emphasis added). Further, claim 1 has been amended to recite that “if a transmission of update data from a base station to a terminal device is interrupted due to any disconnection between them, then after verifying that the terminal device becomes re-connected to the base station, re-starting transmission for remaining parts only of the update data” (emphasis added). Further, claim 1 has been amended to recite “dividing said update data into a plurality of data sets by said base station, said plurality of data sets being added with sequential pointers respectively” (emphasis added). Finally, claim 1 has been amended to recite “verifying by an arithmetic unit of the terminal device a pointer of a completely received update data set and determining a next pointer in connection with a next data set which should be received next after the terminal device becomes re-connected to the base station” (emphasis added).

Amended claim 3 adds that “after a next pointer for said remaining data set is confirmed, then transmitting a data set with the next pointer by the base station” (emphasis added).

Amended claim 4 adds that “after all of said update data are transmitted, then automatically starting an operation test by the arithmetic unit” (emphasis added).

Amended claim 5 adds that “after all of said update data are transmitted, then automatically starting an operation test by the arithmetic unit” (emphasis added).

Claim 6 has been amended to recite a terminal device which includes “a receiving unit for receiving update data transmitted” and “an updating unit for receiving said update data and updating an existent program with said update data, such that said update data and existent program are stored separately within the terminal device” (emphasis added). The recited terminal device further includes “an additional unit for transmitting said remaining data sets with reference to

pointers added to said data sets" (emphasis added), and "an arithmetic unit for verifying a pointer of a completely received update data set and determining a next pointer in connection with a next data set which should be received next" (emphasis added). Finally, the terminal device includes "a re-starting unit for re-starting transmission process of remaining non-transmitted parts of the update data, after it is verified that the terminal device becomes connected to the base station, if a transmission of update data from a base station to a terminal device is interrupted due to any disconnection between them" (emphasis added).

Amended claim 8 adds that "after all of said update data are transmitted, then an operation test is automatically started by said arithmetic unit" (emphasis added).

Amended claim 9 adds "a re-writing unit for rewriting an updated program into said extent program".

It is respectfully submitted that the claims as amended clearly define over the cited prior art and, further, that the Examiner's attempt to combine these four disparate references to arrive at Applicant's claimed invention is little more than a hindsight reconstruction not supported by the references, taken singly or in combination. Therefore, withdrawal of the rejection of the claims, as amended, is respectfully requested.

To further define the claimed invention, new claims 10 to 20 have been added. New claims 10 to 14 are directed to a "method of updating operation system software in a mobile terminal device by transmitting update data from a base station to the mobile terminal device" (emphasis added), while new claims 15 to 20 are directed to a "mobile terminal device which communicates with a base station and receives updated operation system software from the base station" (emphasis added).

The method recited in claim 10 includes the steps of "dividing the update data into a plurality of data sets by the base station" (emphasis added), "transmitting the plurality of data sets by the base station with sequential pointers for each of the data sets to the mobile terminal device" (emphasis added), "receiving the data sets with the sequential pointers by the mobile terminal device" (emphasis added), "storing normal operation system software in a first

storage area of the mobile terminal device” (emphasis added), and “storing the received data sets by the mobile terminal device in a third storage area of the mobile terminal device separate from the first storage area” (emphasis added). According to the method recited in claim 10, “if a transmission of update data from the base station to the mobile terminal device is interrupted, then after verifying that the mobile terminal device is connected to the base station, confirming a next pointer for a remaining data set to be received and transmitting a data request with the next pointer by the mobile terminal device to the base station to re-start transmission of data sets beginning with the remaining data set” (emphasis added), and “after all data sets are received by the mobile terminal device, automatically performing an operation test on the update data to verify operation of updated operation system software” (emphasis added). Finally, the method recited in claim 10 writes “update data from the third storage area to the first storage area” (emphasis added) and resumes “normal operation by the mobile terminal device.”

New dependent claims 11 to 14 further define the method recited in claim 10.

The mobile terminal recited in claim 15 includes “a transmitter unit for transmitting data requests to the base station” and “a receiver unit for receiving update data sets from the base station, update data being divided into data sets and transmitted with sequential pointers by the base station” (emphasis added). The mobile terminal further includes “a processor unit including a first storage area for storing system software for normal operation, a second storage area for providing a save area to the system software, the second storage area electrically connected to the first storage area, a third storage area for storing a updated operation system software, and an arithmetic unit operable based on normal operation system software stored in first storage area” (emphasis added). The “arithmetic unit stores received data sets in the third storage area” (emphasis added) and “if transmission of update data from the base station to the mobile terminal device is interrupted, then after verifying that the mobile terminal device is connected to the base station, confirming by the arithmetic unit a next pointer for a remaining data set to be received and transmitting a data request by the transmitter unit to the base

station to re-start transmission of data sets beginning with the remaining data set, and after all data sets are received by the mobile terminal device, automatically performing an operation test by the arithmetic unit to verify operation of updated operation system software, the arithmetic unit then writing update data from the third storage area to the first storage area and resuming normal operation of the mobile terminal device" (emphasis added).

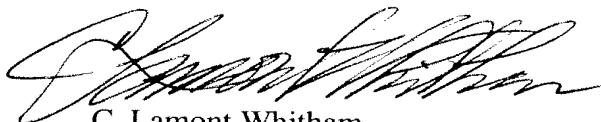
New dependent claims 16 to 20 further define the mobile terminal recited in claim 15.

In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 1, 3 to 6, and 8 to 20 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,



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